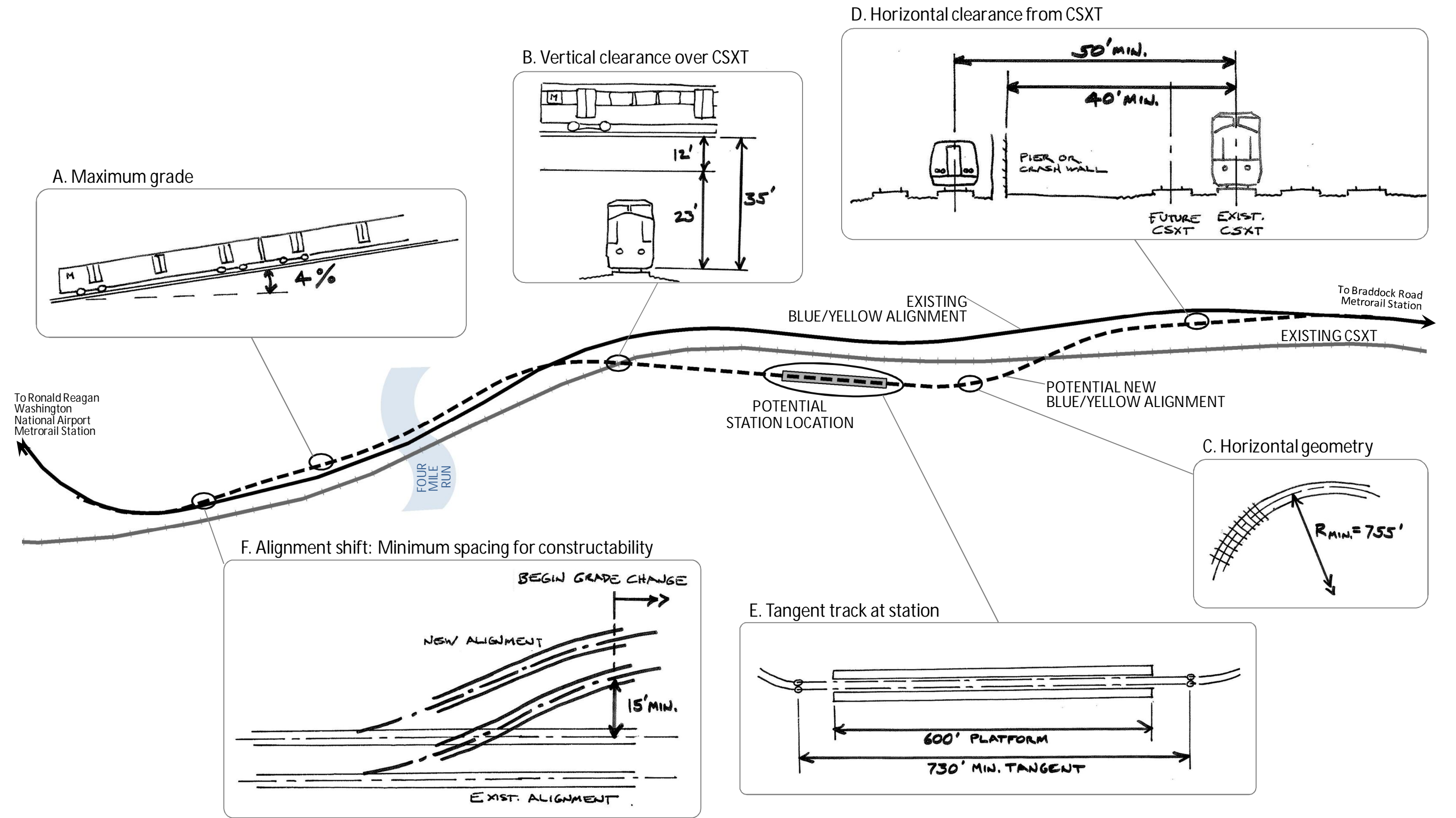


Figure 2-2: Technical Feasibility Criteria



Source: AECOM

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The Alternative A **at-grade** option meets the design criteria and is considered technically feasible. However, the existing vertical alignment in this section undulates, and would need to be flattened to create a continuous grade at the station. It appears feasible to modify the alignment to meet the design criteria. With respect to constructability and construction phasing, the work installing the station platforms would occur adjacent to live track, which would make staging of that work challenging. However, a Construction Phasing Plan could be developed for the alignments, which would phase the work in a method that would meet the maximum out of service requirements of 76 hours. Therefore, the Alternative A **at-grade** option passes the initial screening.

The Alternative A, **underground** and **aerial** options do not pass the initial screening due to constructability and construction phasing issues. The horizontal alignments for these options locate directly along the existing mainline alignment. Construction above or below the existing track would require the Blue and Yellow line to be out of service for the entire construction period, which could take 6 to 18 months of continuous work. This would be far beyond the 76-hour maximum closure period established by WMATA.

See **Appendix A** for more detailed analysis.

2.3.2 Alternatives B1, B2, and B3

Alternatives B1, B2, and B3 each require changes to the existing horizontal alignment in order to achieve the length of tangent track (straight track) required for a station. These alternatives generally stay in proximity to the existing mainline alignment, with the realigned track shifting approximately ten feet on average from the existing track, with a maximum shift of approximately 70 feet. All Alternative B options locate Metrorail within its existing corridor between the George Washington Memorial Parkway to the east and CSXT right-of-way to the west. The Alternative B1 alignment and screening results are shown in **Figure 2-4**, the Alternative B2 alignment and screening results are shown in **Figure 2-5**, and the Alternative B3 alignment and screening results are shown in **Figure 2-6**.

The Alternatives B1, B2, and B3 **at-grade** options meet the design criteria and are considered technically feasible. With respect to constructability and construction phasing, work for Alternatives B1 and B2 would occur adjacent to live track, which would make staging of that work challenging. Staging the construction of Alternative B3 would be less challenging, as the edge of the station platform would be located a minimum of 28 feet from the centerline of the existing track. A Construction Phasing Plan could be developed for the alignments, which would phase the work to meet the maximum out of service requirement of 76 hours.

The Alternatives B1, B2, and B3 **underground** and **aerial** options do not pass the initial screening due to issues associated with constructability and construction phasing. The horizontal alignments for these options locate in close proximity to the existing mainline alignment. Construction above or below the existing track would require the Blue and Yellow line to be taken out of service for most of the construction period, which could take 6 to 18 months. This would be far beyond the 76-hour maximum closure period established by WMATA.

See **Appendix A** for more detailed analysis.

2.3.3 Alternatives C1 and C2

Alternatives C1 and C2 diverge from the existing Blue and Yellow line alignment, cross the CSXT line and Four Mile Run, and locate in the corridor between CSXT and U.S. Route 1. At the northern end, Alternative C1 diverges from the existing alignment on the aerial structure, approximately at the point where the Blue and Yellow line cross over the George Washington Memorial Parkway. Alternative C2 diverges from the existing alignment at approximately the location of transition between the Ronald Reagan Washington National Airport aerial structure guideway and the at-grade guideway. At the southern end, both alignments rejoin the existing alignment approximately 400 feet north of the existing tunnel portal. The Alternative C1 alignment and screening results are shown in **Figure 2-7**, and the Alternative C2 alignment and screening results are shown in **Figure 2-8**.

Alternative C1 **underground** and **aerial** options do not pass the initial screening due to issues associated with vertical clearance, constructability, and construction phasing. Assuming a four percent grade, the

proposed horizontal alignment at the southern end does not provide sufficient distance to achieve the vertical separation required to meet the required clearance over and under the CSXT line (35 feet and 25 feet, respectively). At the northern end, tie-in to the aerial structure would require a continuous out of service period of at least three to six weeks. This out of service period would exceed the acceptable 76 hour maximum closure period. In addition, the northern end of the alignment would require displacement or major modification of newly constructed buildings in the Arlington portion of Potomac Yard.

Alternative C2 **underground** and **aerial** options do not pass the initial screening due to vertical clearance issues. Assuming a four percent grade, the proposed alignment does not provide sufficient distance to achieve the vertical separation required to meet the required clearance over and under the CSXT line and under Four Mile Run at the northern end, or under and over the CSXT line at the southern end.

See **Appendix A** for more detailed analysis.

2.3.4 Alternatives D1 and D2

Alternatives D1 and D2 diverge from the existing Blue and Yellow line alignment, cross the CSXT line and Four Mile Run, and locate in the corridor between CSXT and U.S. Route 1. At the northern end, the divergence from the existing alignment occurs at approximately the location of transition between the Ronald Reagan Washington National Airport aerial structure guideway and the at-grade guideway. At the southern end, Alternative D1 rejoins the existing alignment approximately 400 feet north of the existing tunnel portal, while Alternative D2 rejoins the existing alignment approximately 2,500 feet north of the existing tunnel portal. The Alternative D1 alignment and screening results are shown in **Figure 2-9**, and the Alternative D2 alignment and screening results are shown in **Figure 2-10**.

Alternatives D1 and D2 **underground** and **aerial** options do not pass the initial screening due to issues associated with vertical clearance. Assuming a four percent grade, the proposed alignment does not provide sufficient distance to achieve the vertical separation required to meet the design criteria clearance over and under the CSXT line (35 feet and 25 feet, respectively) and under Four Mile Run (40 feet) at the northern end, or under and over the CSXT line at the southern end.

See **Appendix A** for more detailed analysis.

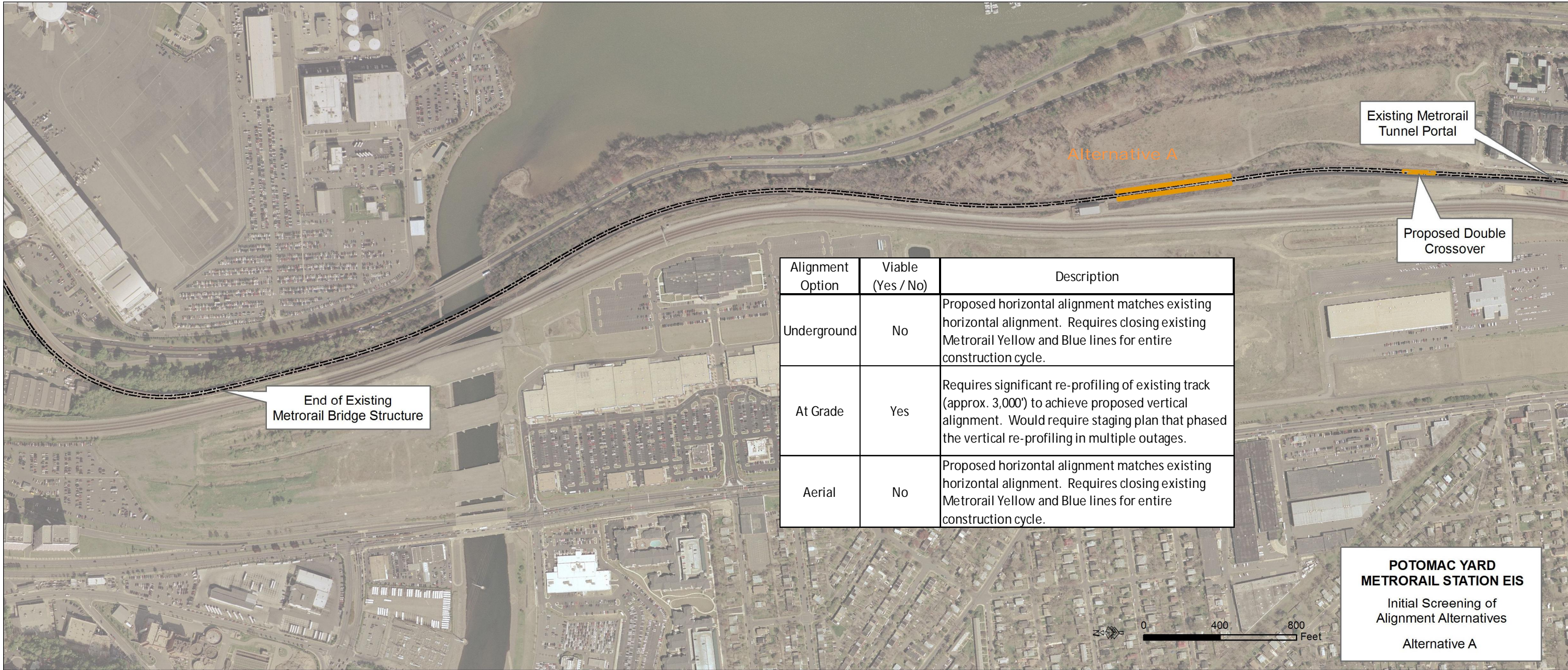
2.3.5 Alternative D3

Alternative D3 was suggested during scoping and has been developed to the point that technical feasibility can be evaluated. This alternative would be similar to the C and D alignments, diverging from the existing Blue and Yellow line alignment to cross the CSXT line and Four Mile Run and locate within the corridor between the CSXT line and U.S. Route 1. Alternative D3 would diverge from the existing Blue and Yellow line around the transition between the Ronald Reagan Washington National Airport aerial structure guideway and the current at-grade guideway. At the northern end, the alignment would locate to the east of the existing mainline track, between the existing Metrorail alignment and the George Washington Memorial Parkway. The alignment would continue in this corridor until sufficient horizontal length was provided to achieve the required vertical clearance of 35 feet over the CSXT line. At that point, the alignment would cross the existing Metrorail alignment and CSXT line, and run along the eastern edge of Potomac Yard. At the southern end, the alignment would cross over the CSXT line and run in the corridor between the CSXT line and the existing Metrorail alignment. The proposed alignment would continue south until a sufficient amount of horizontal alignment was provided to allow the proposed vertical alignment to match the existing vertical alignment elevation and tie into the existing alignment. The Alternative D3 alignment and screening results are shown in **Figure 2-11**.

The Alternative D3 **aerial** option meets the design criteria and is considered technically feasible. The Alternative D3 **underground** option does not pass the initial screening due to issues associated with vertical clearance. Assuming a four percent grade, the proposed alignment does not provide sufficient distance to achieve the 40 feet of vertical separation required to meet the design criteria clearance under Four Mile Run at the northern end.

See **Appendix A** for more detailed analysis.

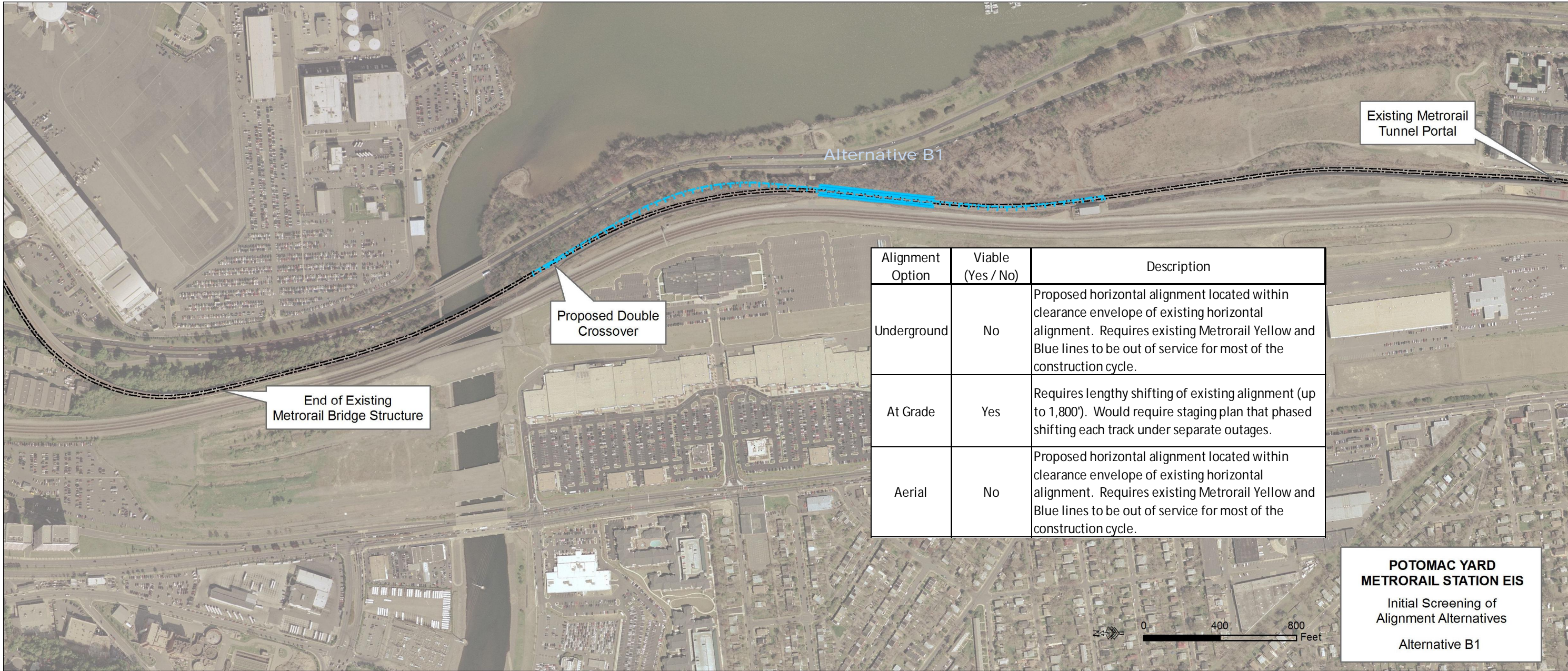
Figure 2-3: Alternative A Alignment and Initial Screening



Source: AECOM

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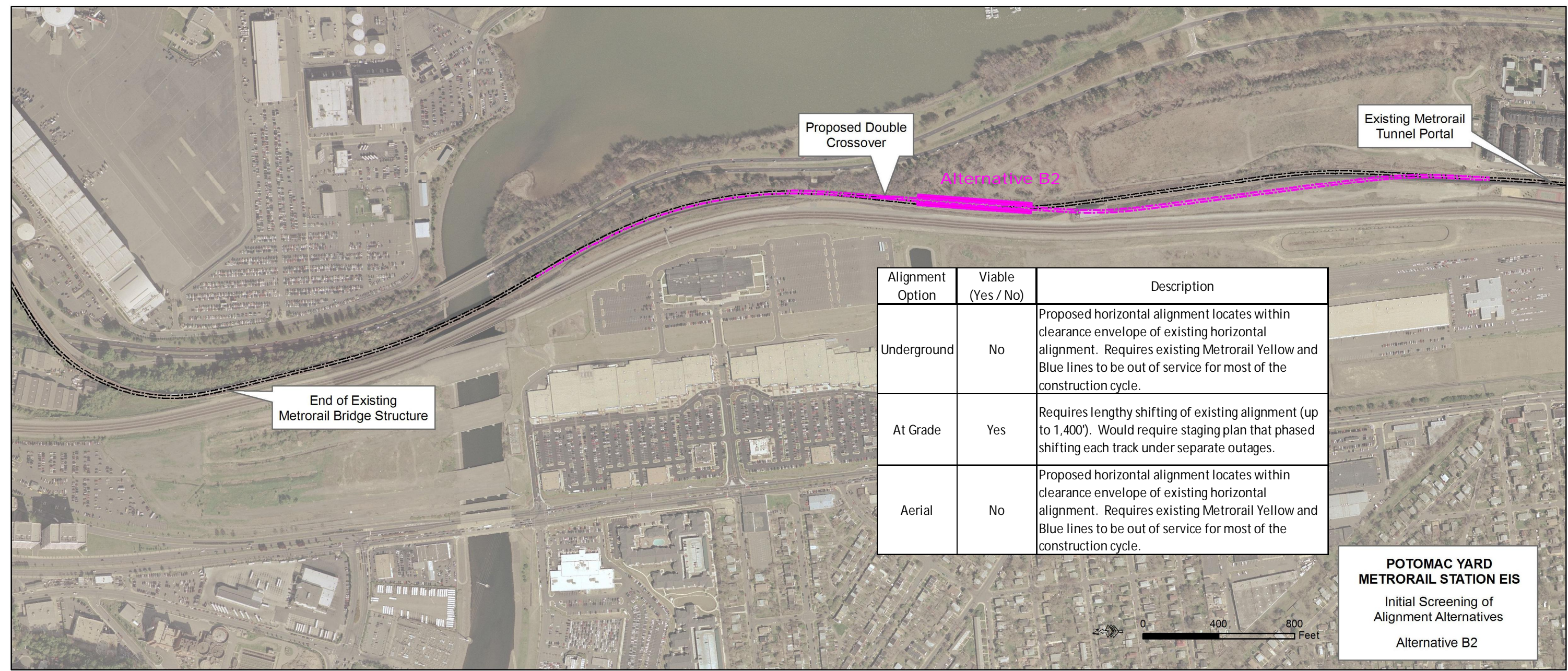
Figure 2-4: Alternative B1 Alignment and Initial Screening



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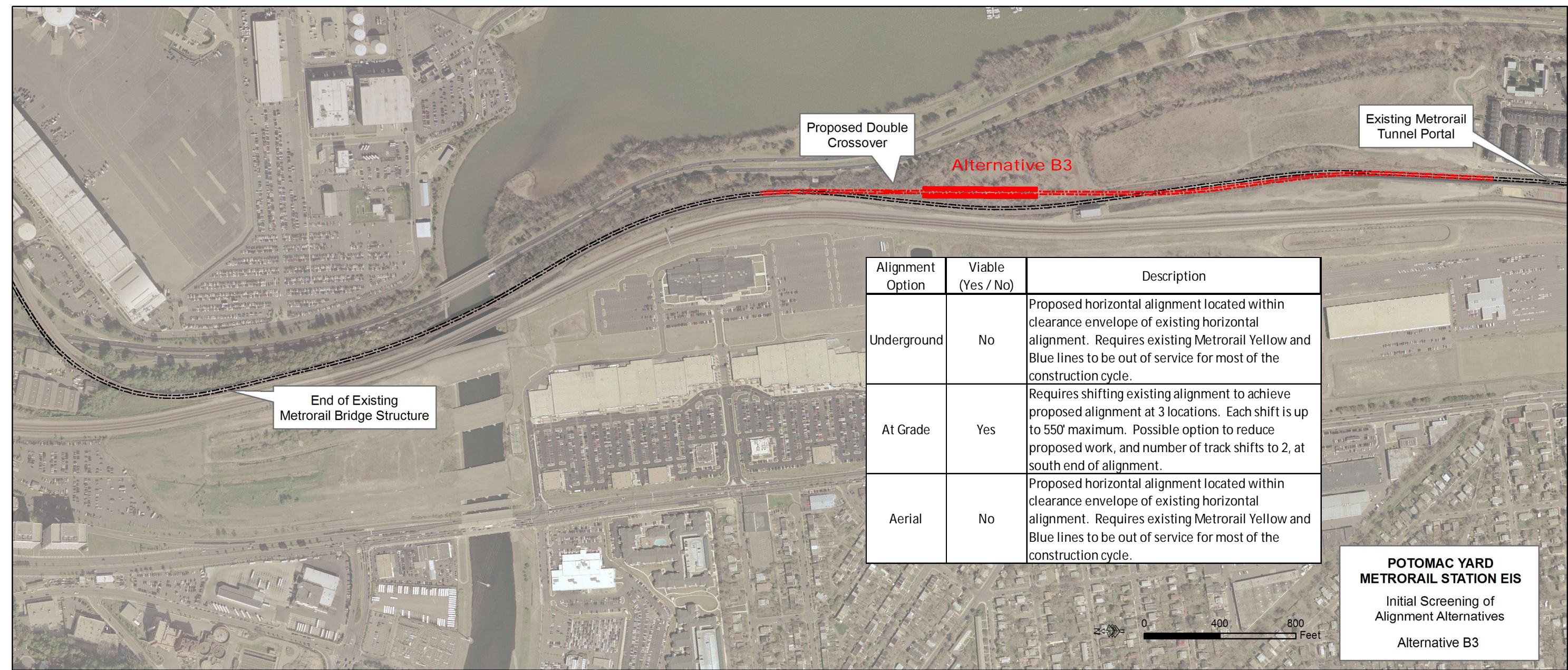
Figure 2-5: Alternative B2 Alignment and Initial Screening



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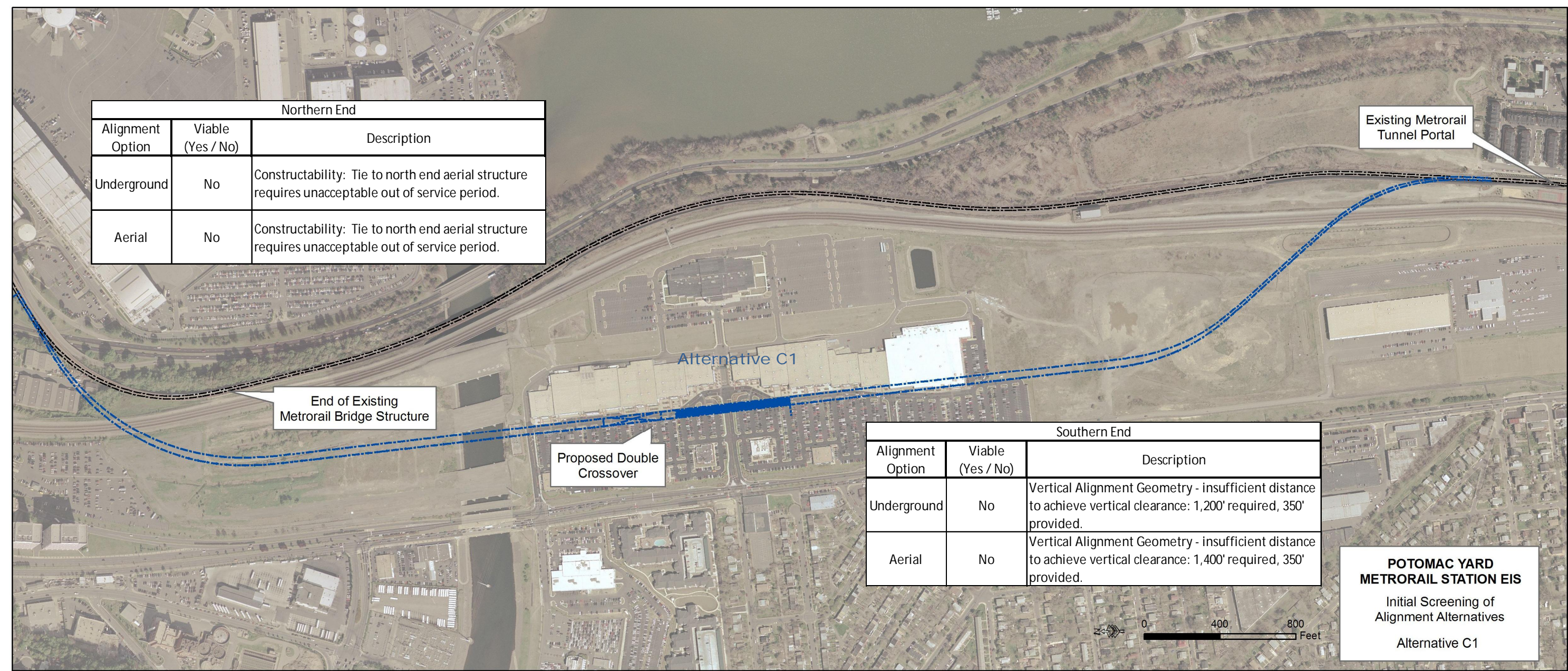
Figure 2-6: Alternative B3 Alignment and Initial Screening



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Figure 2-7: Alternative C1 Alignment and Initial Screening



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